

First reliable sound recording of Golden Nightjar *Caprimulgus eximius*, in the rocky hills of central Mali

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Premier enregistrement certifié du chant de l'Engoulevent doré *Caprimulgus eximius*, obtenu dans les collines rocheuses du Sahel malien. Le premier enregistrement certifié du chant roulé de l'Engoulevent doré *Caprimulgus eximius* a été obtenu près de Gao, dans le Sahel malien, en juin 2004. La repasse du chant a permis d'observer les chanteurs de près en fin de nuit et jusqu'à l'aube. Le chant est un ronronnement prolongé de 23 notes/s et apparaît quasi identique à celui de l'Engoulevent terne *C. inornatus* (enregistré au Yémen et au sud-est du Nigeria, d'où *C. eximius* est absent). Au Mali (Douentza à Gao) et ailleurs, *C. eximius* semble inféodé aux milieux rocheux ou rocailleux pour y chanter et nicher, mais peut se nourrir dans les plaines arides environnantes. *C. inornatus* est également associé aux milieux rocheux (du moins au sud et à l'est de la zone de sympatrie), ou aux prairies caillouteuses (parfois même en milieu montagneux). Il reste à étudier comment les deux espèces, au chant si semblable, se séparent écologiquement dans leur zone de sympatrie.

Summary. We obtained the first definite tape-recording of Golden Nightjar *Caprimulgus eximius* near Gao in the Sahel of Mali, in June 2004. Using playback, the singing birds were examined at close range, just before and until dawn. The song consists of a prolonged churr, of 23 notes/second, and appears virtually identical to that of Plain Nightjar *C. inornatus* (tape-recorded in Yemen and Nigeria outside the area of sympatry). In Mali (Douentza to Gao) and elsewhere *C. eximius* is clearly associated with rocky hills and stony tracts, whilst feeding can occur in the surrounding arid plains. Outside the area of sympatry, to the south and east of the range of *C. eximius*, *C. inornatus* is also associated with rocky hills, or at least pebbly grassland (sometimes in montane areas). It remains to be seen how these two similarly churring nightjars are segregated ecologically in the area of sympatry.

Jackson (2003) summarised our knowledge of the voice of the Golden Nightjar *Caprimulgus eximius*, stressing the lack of reliable tape-recordings. Since Rothschild & Wollaston (1902) it has been known that this species has a churring song: they collected 16 specimens in the Sudan and described the song as a 'churr', uttered on the ground for several minutes. Fry (1988) published a sonogram, attributed to *C. eximius*, of a song tape-recorded by S. Keith in Kenya, but as explained by Jackson (2003) there was a typographical error (an omission of some text) and the sonogram in question was in fact of Dusky Nightjar *C. fraenatus* (published in Chappuis 1981). *C. eximius* is indeed unknown in Kenya. Chappuis (1981) attributed a churring song he tape-recorded in Niger, 100 km north of Tillabéry, to *C. eximius*, but the bird was not captured nor observed in good light (C. Chappuis pers. comm.). Therefore, after FD-L obtained a record-

ing of Plain Nightjar *C. inornatus* from the Mambilla Plateau in eastern Nigeria which proved to be identical to the Tillabéry recording, Chappuis (2000) changed his attribution of the Tillabéry bird to *C. inornatus*.

The Mambilla nightjar was tape-recorded at dusk, on 26 March 1988, singing from gravelly short grassland beside a large patch of montane rainforest at Leinde Fadali, at 1,680 m (*cf.* Dowsett-Lemaire 1989). The bird was not captured but was seen moderately well, showing a tail of normal length (thus excluding Long-tailed Nightjar *C. climacurus*) and a small white wing patch. The bird was attributed to *C. inornatus*, in part because of the habitat and southern location, which seemed to exclude *C. eximius*, which is virtually endemic to the Sahel. A few years later a very good recording of *C. inornatus* from Yemen was obtained by P. Davidson. The author of the song was not very well seen (P. Davidson *in litt.*),

but one *C. inornatus* was mist-netted in the same general area (Dymond (1996) and the song described as a prolonged churr. D. J. Pearson (*in litt.*), who heard *C. inornatus* in Ethiopia, also described the song as a churr, of moderate speed. The tape-recorded songs of *C. inornatus* from Mambilla and Yemen are virtually identical: the beats cover the same frequency range and are given at a rate of 22/second (Yemen) and 23/second (Nigeria) respectively. The Tillabéry bird (better referred to as *Caprimulgus* sp.) has a churr of the same pitch, and of 23 notes/second. *C. inornatus* is silent in eastern Africa, being a non-breeding migrant there (Chapin 1939, Zimmerman *et al.* 1996).

Two *C. fraenatus* tape-recorded in Kenya (published by Chappuis 1981 and Ranft & Cleere 1998) produce a faster churr, of 33 and 29 notes/second respectively. The recording published in 1981 is by Mrs Keith and was identified by M. E. W. North (Chappuis 1981, Jackson 2003), that published in 1998 is by D. J. Pearson, who has long field experience of East African nightjars. Trained ears can distinguish the churr of *C. inornatus* from the faster churr of *C. fraenatus* without great difficulty (D. J. Pearson *in litt.*, FD-L pers. obs.).

Tape-recording of *C. eximius* in Mali

In June 2004 we spent five days in the Sahel of Mali, between Douentza and Gao. One of our main objectives was to obtain a tape-recording of the song of *C. eximius*. Robertson (2001) had listed *C. eximius* for the Ag Oua-Ag Arbech Important Bird Area, which covers an area immediately east and north-east of Gao. P. Robertson (*in litt.*) informed us that he and two colleagues had found one bird day-roosting amongst rocks, in April 1989. This was the site of a former French fort, on a small rocky escarpment a few kilometres east of Gao; a Desert Eagle Owl *Bubo bubo ascalaphus* was discovered roosting on the same rock face.

Rocky hills are rare around Gao. We first searched for this habitat along the road to the north, towards Kidal, but failed to find any. When scanning the surroundings from atop a sand dune, we realised that the only likely area was some way to the south-east. Thus we took the road from Gao east towards Djébock, and c.6 km from Gao we

were within a short distance of the escarpment and the ruins of the French fort. The escarpment is several hundred metres long but very low: the maximum height of the rock face near its centre is c.20 m. At both sides, the escarpment slopes down in the form of broken rocks of volcanic appearance (Fig. 2). On 16 June, we established camp at 16°16'N 00°03'E, c.50 m from the small cliff, adjacent to the only large tree in the area (a *Balanites aegyptiaca*); the sparse vegetation consisted mainly of scattered small bushes and the spiky grass *Schoenefeldia gracilis*. A sandstorm started at 17.00 hrs, and although that did not prevent a pair of *Bubo b. ascalaphus* from emerging onto the cliff and bravely facing the wind, everything else was sheltering. When we awoke next day, at 04.30 hrs, the wind had calmed to occasional bursts and we heard a churring song nearby. It appeared that two pairs of nightjar were present, with both males singing. The nearer male, which was tape-recorded, sang from atop nearby rocks and bushes, including the *Balanites* by our tent. It responded to playback on several occasions, flying over and around us while giving a double wing-clap. The large, broad white wing patch was clearly visible, as were the white tail-corners; both features were also obvious when the bird was perched. In addition to the churring song, a call-note was uttered a few times (not tape-recorded) consisting of 3–4 *koro, koro, koro*, given at the rate of three notes per second. All four nightjars were active until almost full daylight, when the mottled golden plumage became very obvious.

On the evening of 18 June we camped near Bota village, 5 km north of Douentza on the road to Tombouctou (15°05'N 02°58'W). Bota is at the foot of Mt Gandamia, a huge rocky mountain rising several hundred metres above the surrounding plain (Fig. 3). We briefly heard a churring nightjar at dusk, but playback of the Gao tape failed to interest it, and it flew towards the plain. Next day we were woken at 04.30 hrs by a churring song coming from broken rocks in the foothills. This time playback of the Gao tape attracted a nightjar within seconds and it flew around wing-clapping or churred from a rock close to the ground. We obtained good views of the bird, especially as it remained active until almost full daylight. Eventually it landed on the ground in front of a small golden rock 6 m away from us and apparent-

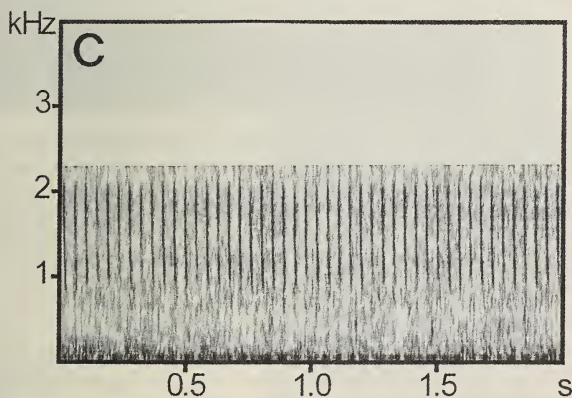
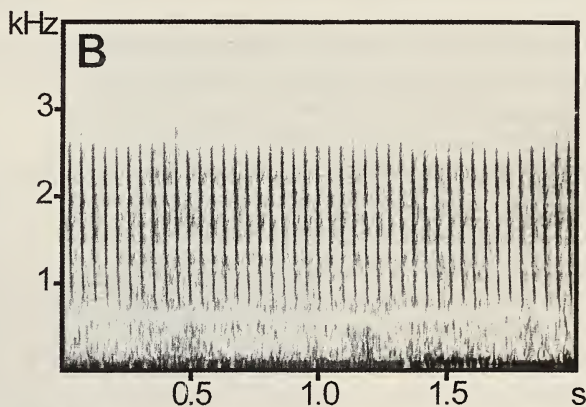
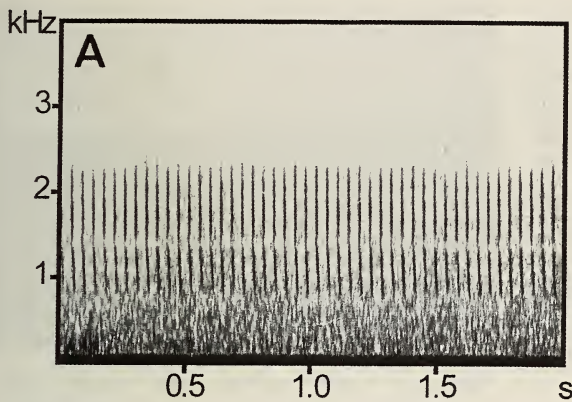


Figure 1. Sonograms of churring songs of nightjars: A: Golden Nightjar *Caprimulgus eximius* tape-recorded at Gao, Mali (original recording by FD-L on Panasonic RQ-L335 recorder with Hama microphone); B: Plain Nightjar *C. inornatus* tape-recorded in Yemen (by P. Davidson); C: presumed *C. inornatus* tape-recorded in south-east Nigeria (original recording by FD-L on Sony TCM-150 recorder, modified by Mineroff, with Beyer Dynamic microphone). Sonograms generated with Avisoft Professional programme.

Sonogrammes de chants roulés d'engoulevants: A: Engoulevant doré *Caprimulgus eximius* enregistré à Gao, Mali (enregistrement original par FD-L avec un enregistreur Panasonic RQ-L335 et un microphone Hama); B: Engoulevant terne *C. inornatus* enregistré au Yémen (par P. Davidson); C: *C. inornatus* présumé enregistré au sud-est du Nigeria (enregistrement original par FD-L avec un enregistreur Sony TCM-150, modifié par Mineroff, avec microphone Beyer Dynamic). Sonogrammes réalisés avec le programme Avisoft Professional.

ly fell asleep until full daylight. It was unquestionably *C. eximius*.

At Hombori, nearly halfway between Douentza and Gao, we had camped at the foot of another huge rocky mountain, the 'Main de Fatma' (15°14'N 01°48'W; Fig. 4), on 15–16 June, and heard brief snatches of a churring nightjar at dusk and dawn; we saw one bird flying off towards the surrounding plain at dusk. It could not be tape-recorded as it sang for too short a period, but we believe it too was *C. eximius*, as the habitat was identical to that at Bota and the location intermediate between Bota and Gao.

When we subsequently analysed the song on the Gao tape, we found that it had a tempo and frequency so similar to those of *C. inornatus* of Nigeria and Yemen (and to that of *Caprimulgus* sp. from Tillabéry, Niger) as to be indistinguishable. It had 23 beats per second, and was of similar pitch. Fig. 1 presents sonograms of the two species' songs. The songs share features of tempi, general frequency and shape of beats. It is possible that the song of *C. eximius* is a little louder at the level of 1 kHz, but more recordings would be necessary to test whether this is a permanent feature of the species' voice. Our recording of *C. inornatus* from Mambilla (south-east Nigeria) is only slightly lower pitched than that from Yemen.

Habitat of *C. eximius* in Mali

At the Gao and Douentza sites, *C. eximius* was found to be associated with rocky hills, whether low or very tall, although some birds were seen, at both sites and at Hombori, flying towards the surrounding plain to feed. The habitat could be described succinctly as a more arid version of the rocky places favoured by Freckled Nightjar *C. tristigma*. The latter was not found at any of the three rocky hills explored in June 2004, but, on a previous visit, on 2 March 2002, a *C. tristigma* was clearly heard at Gono, c.25 km east of Douentza (15°05'N 02°44'W), at the foot of a large amphitheatre which is part of the same rocky massif as Mt Gandamia, and stretches almost all the way to Boni (15°04'N 02°13'W). The cliff at Gono faces south, the 'cirque' is more sheltered and the vegetation somewhat more developed than at Bota, with more large *Acacia* (especially *A. albida*, whereas the dominant tree at Bota is *A. tortilis*). Birds associated with rocks at Gono includ-



Figure 2. Low rocky escarpment near Gao, Mali, where Golden Nightjar *Caprimulgus eximius* was tape-recorded (Françoise Dowsett-Lemaire)

Escarpement rocheux de faible hauteur près de Gao, Mali, où l'Engoulevent doré *Caprimulgus eximius* a été enregistré (Françoise Dowsett-Lemaire)



Figure 3. Tall rocky mountain near Douentza, Mali; Golden Nightjars *Caprimulgus eximius* occupy the lower levels with broken rocks (Françoise Dowsett-Lemaire)

Haute montagne rocheuse près de Douentza, Mali; les Engoulevents dorés *Caprimulgus eximius* occupent les niveaux inférieurs (Françoise Dowsett-Lemaire)

ed Fox Kestrel *Falco alopex*, Stone Partridge *Ptilopachus petrosus*, Rock Pigeon *Columba livia*, Barn Owl *Tyto alba*, Spotted Eagle Owl *Bubo africanus*, Rock Martin *Hirundo fuligula*, Cliff Chat *Myrmecocichla cinnamomeiventris*, Familiar Chat *Cercomela familiaris*, Neumann's Starling *Onychognathus neumanni* and House Bunting *Emberiza striolata*. Neither *Cercomela familiaris* nor *Onychognathus neumanni* (nor, as already mentioned, *C. tristigma*) were found at Bota, where the main cliff is more exposed as it faces

west, and the area appears too sparsely vegetated for these birds. Other species associated with rocks and cliffs at Bota were, in addition to various raptors, mainly *Ptilopachus petrosus*, *Tyto alba*, *Bubo b. ascalaphus* (calling from the tall cliff), *B. africanus* (heard and seen among the broken rocks in the foothills), *Columba livia*, Mottled Swift *Apus aequatorialis*, Pallid Swift *A. pallidus*, *Hirundo fuligula*, *Myrmecocichla cinnamomeiventris*, and both *Emberiza striolata* and Cinnamon-breasted Rock Bunting *E. tahapisi*. At the 'Main de Fatma' at Hombori the vegetation is thinner and the main rock-associated bird species include *Ptilopachus petrosus*, *Columba livia*, *Tyto alba*, *Bubo b. ascalaphus*, *B. africanus* (also in the foothills, as at Bota), *Apus aequatorialis*, *A. pallidus*, *Hirundo fuligula*, *Myrmecocichla cinnamomeiventris*, *Emberiza striolata* and *E. tahapisi*.

Finally, the small rocky escarpment near Gao is in very much more arid country, and bird species recorded adjacent to the rocks were very few: no

diurnal raptors nor *Ptilopachus petrosus*, no swifts nor martins, but only one pair of *Bubo b. ascalaphus*, one pair of *Tyto alba* (seen at dawn returning to a rock crack only metres away from that inhabited by the larger *Bubo*), a pair of Desert Larks *Ammomanes deserti* with young (among the broken rocks), one Blackstart *Cercomela melanura* and a few *Emberiza striolata*.

Discussion

That *C. eximius* may be associated with rocky hills and escarpments in the same way as *C. tristigma* is not clearly mentioned in the literature, but at least an association with stony ground is well established. Indeed, in an arid environment there may be little else but rocky hills or at least broken rocks to provide the necessary shelter for day-roosting and nesting. Rothschild & Wollaston (1902: 20–21) described the habitat in Sudan as 'generally sloping ..., coarse and gravelly, often with a good many scattered stones and tufts of grass'. The

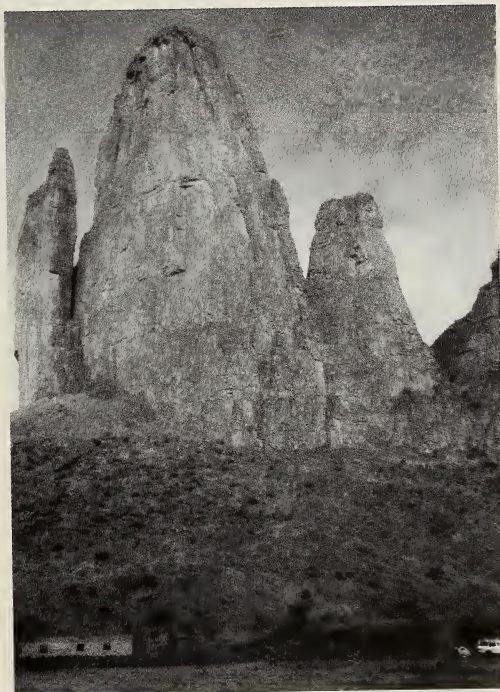


Figure 4. 'Main de Fatma', Hombori, Mali. A churring nightjar song, almost certainly belonging to Golden Nightjar *Caprimulgus eximius*, was heard here (Françoise Dowsett-Lemaire)

'Main de Fatma', Hombori, Mali, où un chant roulé a été entendu, presque certainement celui de l'Engoulevent doré *Caprimulgus eximius* (Françoise Dowsett-Lemaire)

main habitat description in Fry & Harwin (1988: 183) is evidently based on the same reference: 'typically on sloping, coarse gravelly and stony ground with scattered tufts of grass and dwarf scrub'. Even though Rothschild & Wollaston (1902) never saw *C. eximius* perched on a tree (a detail repeated by Fry & Harwin 1988), we can vouch that this does indeed occur: the bird tape-recorded near Gao frequently perched in trees while singing, as well as on rocks. Few other data on habitat have been published, *C. eximius* having remained one of the least-studied African nightjars. Lynes (1925: 370), however, added a few details of interest in his notes from the Sudan: 'We found this lovely nightjar here and there ... on yellow to reddish-yellow gravelly or stony tracts ... Along our route across the flat plains such ground is more or less confined to isolated patches'.

On the basis of these publications and our observations in Mali we conclude that the species is associated with stones and rocks, including broken rocks on small escarpments or situated in the foothills of large mountains.

The similarity between the songs of *C. eximius* and *C. inornatus* is a problem. Normally, churring nightjars that are largely sympatric chur at different speeds: see for example *C. inornatus* and *C. fraenatus*. The latter produces a chur that is 30–50% faster than that of its congener, with 29–33 notes/second versus 22–23, and there is no doubt that birds, which have a better appreciation of time-resolution than humans, can make the distinction. Another striking example is that of *C. climacurus*, which produces the fastest of all African nightjars' churrs, at 42 beats/second (measured on a sonogram made from the recording published by Chappuis 1981). This is so fast as to sound almost like a purr.

C. eximius is near-endemic to the Sahel and unknown east of Sudan (Fry & Harwin 1988). The range of *C. inornatus* extends further south and south-east (mainly as a non-breeding migrant; e.g. Chapin 1939, Zimmerman *et al.* 1996), and east to Yemen, but the two species overlap in a large part of the Sahel. *C. inornatus* appears to occupy a very broad range of habitats, from very dry to reasonably green, having even been found breeding in montane grassland on Mt Nimba, Liberia (based on a nestling collected by A. D. Forbes-Watson, in Colston & Curry-Lindahl

1986, Fry & Harwin 1988); this appears rather similar to the habitat where FD-L tape-recorded it on the Mambilla Plateau. In Bui National Park in western Ghana in March 2005, some (presumed) *C. inornatus* were singing in two places in recently burnt woodland with pebbly or rocky substrate (pers. obs.). In the more rocky of the two sites there were also several *C. tristigma*. The churring song sounded similar to that taped in Nigeria and Yemen, i.e. clearly slower than that of sympatric *C. climacurus*, and one *C. inornatus* was seen very well by day in the same area. In Faro National Park in Cameroon one presumed *C. inornatus* (i.e. with a similar slowish churr) was heard on a stony hill next to *C. tristigma* (pers. obs. March 1999). It was not seen but this was in Sudanian woodland way south of the range of *C. eximius*.

Possibly *C. inornatus* is ecologically well segregated from *C. eximius* within the Sahel, but that remains to be proven. Any ornithologist coming across a churring nightjar in West Africa should be equipped with at least a copy of a tape-recording (of either *C. eximius*, *C. inornatus* or *Caprimulgus* sp. from Tillabéry in Chappuis 2000, all similar), and play it in the early morning to discover which species reacts. From our experience in Mali, and even more so in the forests of northern Congo (where we undertook extensive playback experiments with Brown Nightjar *C. binotatus* and suspected Itombwe Nightjar *C. prigoginei*: Dowsett-Lemaire & Dowsett 1998), nightjars respond far better in the hour just preceding dawn than in the early part of the night. They then return to their territory on a full stomach and are ready to challenge a competitor. Moreover, good views of the singer can be obtained as dawn approaches.

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